Hogans, David

From: Harrison, Jeff
Sent: Thursday, September 11, 2003 7:07 AM
To: Hogans, David
Cc: Jeff Harrison
Subject: 10/022,262, prior-art search status

David,

I am getting this done right now.

I have the entire case and your written instructions, the search notes, the IDS, and the PGPUB 20020079503.

10/022,262, prior-art search status

Yamazaki et al., Semiconductor Energy Laboratory Co.

-- LED with plated metal film
--- plurality of pixels in a matrix
---- each pixel with light switching element and light emitting element
----- with organic light emitting layer / OLED
-- Plated film by electroplating / applying a metal by electrolysis
-- Metal film of copper, aluminum, gold, or silver
-- Film applied to a line (scanning, signal, data or power)

-- The plated line has better conductivity / lower resistivity

This involves amended independent claims 1, 7, 13

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L4  ANSWER 1 OF 2  HCAPLUS  COPYRIGHT 2003 ACS on STN AN   2002:483160  HCAPLUS
TI  Light emitting device and method of manufacturing the same
IN  Yamazaki, Shunpei; Koyama, Jun; Osada, Mai
IC  ICM H01L033-00
NCL 257089000
FAN.CNT 1
    PATENT NO.       KIND  DATE        APPLICATION NO.  DATE
    ---------------  ----  --------    ---------------  --------
PI  US 2002079503    A1    20020627    US 2001-22262    20011220 <--
    JP 2002318555    A2    20021031    JP 2001-382483   20011217 <--
    CN 1360350       A     20020724    CN 2001-143386   20011221 <--
PRAI JP 2000-388378  A     20001221 <--
AB  There is provided a light emitting device in which low power consumption
    can be realized even in the case of a large screen.  The surface of a
    source signal line or a power supply line in a pixel portion is plated to
    reduce a resistance of a wiring.  The source signal line in the pixel
    portion is manufactured by a step different from a source signal line in a
    driver circuit portion.  The power supply line in the pixel portion is
    manufactured by a step different from a power supply line led on a
    substrate.  A terminal is similarly plated to made the resistance
    reduction.  It is desirable that a wiring before plating is made of the
    same material as a gate electrode and the surface of the wiring is plated
    to form the source signal line or the power supply line.
IC  ICM G09F009-30; H01L027-15; H01L033-00; H05B033-04
    ICS G09F009-00; H01L021-00; H01L029-786; H01L031-12; H05B033-06; H05B033-10; H05B033-14
Derwent TECHNOLOGY FOCUS - METALLURGY - The conductive material coated on the
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conductor, contains metals selected from the groups including copper, aluminum, gold, silver and their alloys.

Derwent MC CPI: L03-G05 EPI: T04-H03C3; U14-J01; U14-J03

STIC Search Report
EIC 2800

STIC Database Tracking Number: 102336

TO: David Hogans
Location: CP4-4D14
Art Unit: 2813
9/11/2003

Case Serial Number: 10/022,262

From: Jeff Harrison
Location: STIC-EIC2800
CP4-9C18
Phone: 306-5429

Email: harrison, jeff

Search Notes

Examiner Hogans,

Re: Electroplated metal lines in an OLED.

Attached are edited search results from the patent and NPL literature, mostly Chemical Abstracts.

Many of the documents do not say how the metal was created in the OLED.

Based on this, if you have questions or would like a refocused search, please contact me.

Thanks,
Jeff

Jeff Harrison
Team Leader, STIC-EIC2800
CP4-9C18, 703-306-5429

STIC Search Results Feedback Form

EIC 2800

Questions about the scope or the results of the search? Contact ***the EIC searcher or contact***:

Jeff Harrison, EIC 2800 Team Leader
306-5429, CP4-9C18

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 2810*
- *Relevant prior art **found**, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

  Types of relevant prior art found:
  - ☐ Foreign Patent(s)
  - ☐ Non-Patent Literature
    (journal articles, conference proceedings, new product announcements etc.)
- *Relevant prior art **not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to STIC/EIC2800, CP4-9C18

sira Search and Information Resources Administration

Search History


```
     FILE 'HCAPLUS, WPIX' ENTERED AT 07:05:00 ON 11 SEP 2003
L1           2 SEA ABB=ON  PLU=ON  JP2000-0388378/PRN,AP
L2             SEL PLU=ON  L1 1- IC RN :      11 TERMS
L3      128103 SEA ABB=ON  PLU=ON  L2
L4           2 SEA ABB=ON  PLU=ON  L1 AND L3

     FILE 'HCAPLUS' ENTERED AT 07:12:56 ON 11 SEP 2003
L5           1 SEA ABB=ON  PLU=ON  JP2000-0388378/PRN,AP

     FILE 'WPIX' ENTERED AT 07:14:12 ON 11 SEP 2003
L6           1 SEA ABB=ON  PLU=ON  JP2000-0388378/PRN,AP
L7             SEL PLU=ON  L6 1- IC :      11 TERMS

     FILE 'HCAPLUS' ENTERED AT 07:14:25 ON 11 SEP 2003
L8       41802 SEA ABB=ON  PLU=ON  L7
               E OLED/CT
               E ORGANIC LIGHT EMIT/CT
               E LIGHT EMIT/CT
               E E5+ALL/CT
               E ELECTROLUMINESCENT DEVICEA/CT
               E E4+ALL/CT
L9      357264 SEA ABB=ON  PLU=ON  LED OR EMIT###### OR OLED
L10     562338 SEA ABB=ON  PLU=ON  EL OR ?LUMINESC? OR L9
               E METAL PLAT/CT
               E ELECTROPLAT/CT
               E E5+ALL/CT
               E ELECTRODEP/CT
               E E5+ALL/CT
L11     110878 SEA ABB=ON  PLU=ON  ELECTRODEPOSITION/CT OR "ELECTRODEPOSITION
               AND ELECTROPLATING"/CT OR "ELECTRODEPOSITION, ELECTROPLATING"/C
               T OR ELECTROWINNING/CT OR ELECTRODEPOSITS/CT OR ELECTROPLAT####
               #### OR METALPLAT###### OR (METAL OR ELECTRO)(W)PLAT####
L12      15313 SEA ABB=ON  PLU=ON  METAL######(3A)(ELECTROLYTIC####### OR
               ELECTROLYS#######)
L13     124117 SEA ABB=ON  PLU=ON  (L11 OR L12)

     FILE 'REGISTRY' ENTERED AT 07:21:33 ON 11 SEP 2003
L14          4 SEA ABB=ON  PLU=ON  (COPPER OR ALUMINUM OR GOLD OR SILVER)/CN

     FILE 'HCAPLUS' ENTERED AT 07:22:26 ON 11 SEP 2003
L15      49541 SEA ABB=ON  PLU=ON  L14(L)(ELECTROPLAT? OR ELECTRODEP? OR
               ELECTROLYS? OR ELECTROLYTIC? OR PLATE## OR PLATING)
L16       1306 SEA ABB=ON  PLU=ON  L10 AND L11
L17        158 SEA ABB=ON  PLU=ON  L10 AND L12
L18        518 SEA ABB=ON  PLU=ON  L10 AND L15
L19          9 SEA ABB=ON  PLU=ON  (L16 OR L17 OR L18) AND (OED OR (ORGANOMETA
               LLIC#### OR ORGANO OR POLY###### OR ORGANIC#####)(3A)EMIT######
               )
               D ALL HITSTR 1-9
L20            SEL PLU=ON  L19 1- RN :      60 TERMS

     FILE 'REGISTRY' ENTERED AT 07:26:25 ON 11 SEP 2003
L21         60 SEA ABB=ON  PLU=ON  L20
L22         30 SEA ABB=ON  PLU=ON  L21 AND C/ELS

     FILE 'HCAPLUS' ENTERED AT 07:26:41 ON 11 SEP 2003
L23     372442 SEA ABB=ON  PLU=ON  L22
L24         34 SEA ABB=ON  PLU=ON  (L16 OR L17 OR L18) AND L23
L25         28 SEA ABB=ON  PLU=ON  L24 NOT L19
               D ALL HITSTR 1-28
L26         10 SEA ABB=ON  PLU=ON  (L16 OR L17 OR L18) AND (OLED OR (ORGANOMET
               ALLIC#### OR ORGANO OR POLY###### OR ORGANIC#####)(3A)EMIT#####
               #)
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L27          1 SEA ABB=ON  PLU=ON  L26 NOT L19
               D ALL HITSTR
L28      29813 SEA ABB=ON  PLU=ON  L14(L)(PLATED OR PLATE OR ELECTROPLAT######
                OR LINES OR METALIZ? OR METALIS? OR METALLIZ? OR METALLIS?)
L29        251 SEA ABB=ON  PLU=ON  (L16 OR L17 OR L18) AND L28

     FILE 'REGISTRY' ENTERED AT 07:30:56 ON 11 SEP 2003
L30         29 SEA ABB=ON  PLU=ON  L22 AND H/ELS

     FILE 'HCAPLUS' ENTERED AT 07:31:17 ON 11 SEP 2003
L31          3 SEA ABB=ON  PLU=ON  L30 AND L29
L32         12 SEA ABB=ON  PLU=ON  L8 AND L29
L33         37 SEA ABB=ON  PLU=ON  L19 OR L25
L34         38 SEA ABB=ON  PLU=ON  L33 OR L27
L35         12 SEA ABB=ON  PLU=ON  (L31 OR L32) NOT L34
               D ALL HITSTR 1-12
L36      45136 SEA ABB=ON  PLU=ON  OLED OR (ORGANIC(3A)(FILM OR LAYER) OR
               ORGANIC(3A)EMIT###### OR ORGANIC(3A)LIGHT)
L37     153517 SEA ABB=ON  PLU=ON  L13 OR L15 OR L28
L38        804 SEA ABB=ON  PLU=ON  L36 AND L37
L39          7 SEA ABB=ON  PLU=ON  L38 AND L8
L40         16 SEA ABB=ON  PLU=ON  L38 AND LINES
L41          2 SEA ABB=ON  PLU=ON  L38 AND (SOURCE OR SCAN OR SCANN###### OR
               SIGNAL##### OR POWER OR VOLTAGE OR CURRENT OR POTENTIAL)(3A)(SU
               PPLY OR LINE OR WIRE)
L42          3 SEA ABB=ON  PLU=ON  L38 AND (PICTURE ELEMENTS OR PIXELS OR
               (ELEMENT OR PIXEL)(3A)(ARRAY##### OR MATRIX#### OR PATTERN#####
               ))
L43          0 SEA ABB=ON  PLU=ON  L38 AND SWITCH##### AND EMIT#####
L44         24 SEA ABB=ON  PLU=ON  (L39 OR L40 OR L41 OR L42)
L45         50 SEA ABB=ON  PLU=ON  (L34 OR L35)
L46         20 SEA ABB=ON  PLU=ON  L44 NOT L45
L47            SEL PLU=ON  L46 1- RN :        99 TERMS

     FILE 'REGISTRY' ENTERED AT 07:39:05 ON 11 SEP 2003
L48         99 SEA ABB=ON  PLU=ON  L47
L49         46 SEA ABB=ON  PLU=ON  L48 AND C/ELS

     FILE 'HCAPLUS' ENTERED AT 07:39:40 ON 11 SEP 2003
L50         14 SEA ABB=ON  PLU=ON  L46 AND L14
L51          9 SEA ABB=ON  PLU=ON  L46 AND L49
L52         18 SEA ABB=ON  PLU=ON  (L50 OR L51)
L53          2 SEA ABB=ON  PLU=ON  L46 NOT L52
L54    3462230 SEA ABB=ON  PLU=ON  L47
L55          0 SEA ABB=ON  PLU=ON  L53 AND L54
L56     436304 SEA ABB=ON  PLU=ON  RESISTIVITY OR CONDUCTIVITY
L57      30270 SEA ABB=ON  PLU=ON  L10 AND L14
L58       1289 SEA ABB=ON  PLU=ON  L57 AND L56
L59         17 SEA ABB=ON  PLU=ON  L58 AND (PICTURE ELEMENT OR PIXEL OR
               ELECTRODE(3A)(PATTERN##### OR ARRAY#### OR MATRIX))
L60         70 SEA ABB=ON  PLU=ON  (L44 OR L45)
L61         17 SEA ABB=ON  PLU=ON  L59 NOT L60
L62            SEL PLU=ON  L61 1- RN :        79 TERMS

     FILE 'REGISTRY' ENTERED AT 07:45:01 ON 11 SEP 2003
L63         79 SEA ABB=ON  PLU=ON  L62
L64         20 SEA ABB=ON  PLU=ON  L63 AND C/ELS

     FILE 'HCAPLUS' ENTERED AT 07:45:34 ON 11 SEP 2003
L65          5 SEA ABB=ON  PLU=ON  L61 AND L64
L66         17 SEA ABB=ON  PLU=ON  L61 AND L14
L67          7 SEA ABB=ON  PLU=ON  L66 AND (ORGANIC OR ORGANO############ OR
               OLED)
L68          9 SEA ABB=ON  PLU=ON  L66 NOT (L65 OR L67)
L69          8 SEA ABB=ON  PLU=ON  (L65 OR L67)
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11sep03 07:54:27 User259284 Session D2380.1

File   2:INSPEC 1969-2003/Aug W5
       (c) 2003 Institution of Electrical Engineers
*File  2: Alert feature enhanced for multiple files, duplicates
removal, customized scheduling. See HELP ALERT.


Set      Items   Description
S1       86762   'LIGHT EMITTING DEVICES' OR R3:R6 OR EL OR ELECTROLUM? OR -
             LED OR LEDS
S2         909   OLED? ?
S3         815   1AND2
S4        1853   ORGANIC??????(2N)(LED OR LEDS OR LIGHT()EMIT??????)
S5        1973   S2 OR S4
S6       16333   'ELECTROPLATING' OR ELECTROPLAT???????? OR 'ELECTROPLATED -
             COATINGS' OR 'ELECTRODEPOSITION' OR 'LIGA' OR METALPLAT? OR M-
             ETAL?????()PLAT?????
S7         358   (ELECTROLYS????? OR ELECTROLIS?????? OR ELECTROLIZ? OR ELE-
             CTROLIS? OR ELECTROLYTIC???????)(3N)METAL??????
S8       16615   S6:S7
S9           0   5AND8
S10      98892   CI=AL EL OR CI=AU EL OR CI=CU EL OR CI=AG EL
S11        221   5AND10
S12       1038   POLYMER??????(2N)(LED OR LEDS OR LIGHT()EMITT?????)
S13        101   12AND10
S14        306   S11 OR S13
S15       3049   8AND10
S16          0   14AND15
S17          0   S14 AND METAL??????(2N)LINES
S18          0   S14 AND METAL??????(2N)CONDUCTORS
S19          0   S14 AND METAL??????(2N)TRAC??????
S20     112458   S8:S10
S21       2698   S4 OR S12
S22        299   20AND21
S23        297   S22 AND S10
S24          0   S22 AND ELECTROPLAT?
S25        164   S22 AND ELECTROL?
S26          1   S22 AND METAL?????(3N)ELECTROL?
S27          3   S22 AND PLAT?????
S28       1324   S28:S45
S29        159   21AND28
S30         30   10AND29
S31         22   S29 AND METAL??????????
S32         45   S30:S31
S33          1   S26
S34        156   S34:S38
S35         13   21AND34
S36          8   10AND34
S37         19   METAL??????????? AND S34
S38          4   S26 OR S27
S39         33   S35:S37 NOT S38
? b 415
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11sep03 06:52:02 User259284 Session D2378.2

File 342:Derwent Patents Citation Indx 1978-01/200338
       (c) 2003 Thomson Derwent
*File 342: Updates 200160-200209 replaced. See HELP NEWS 342.
Alert feature enhanced for multiple files, etc. See HELP ALERT.

      Set  Items  Description
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      S1       1  PN=EP 989614
? s cg=ep 989614
      S2       0  CG=EP 989614
? s ct=ep 989614
      S3       0  CT=EP 989614
? s s1
      S4       1  S1
? map pn

1 Select Statement(s), 3 Search Term(s)
Serial#SD515

1 SearchSaves,  3 Search Term(s)
? map pn/ct=

1 Select Statement(s), 3 Search Term(s)
Serial#SD516

1 SearchSaves,  3 Search Term(s)
? map pn/cg=

1 Select Statement(s), 3 Search Term(s)
Serial#SD517

1 SearchSaves,  3 Search Term(s)
? map cg
>>>No items to MAP
? map ct

1 Select Statement(s), 10 Search Term(s)
Serial#SD518

1 SearchSaves,  10 Search Term(s)
? map ct/cg=

1 Select Statement(s), 10 Search Term(s)
Serial#SD519

1 SearchSaves,  10 Search Term(s)
? map ct/pn=

1 Select Statement(s), 10 Search Term(s)
Serial#SD520

1 SearchSaves,  10 Search Term(s)
? ex sd515;ex sd516;ex sd517;ex sd518;ex sd519;ex sd520

Set     Items   Description
S1          1   PN=EP 989614
S2          0   CG=EP 989614
S3          0   CT=EP 989614
S4          1   S1
S5          1   PN=EP 989614 + PN=JP 2000156504 + PN=US 6359320
S6          0   CT=EP 989614 + CT=JP 2000156504 + CT=US 6359320
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S7          7   CG=EP 989614 + CG=JP 2000156504 + CG=US 6359320
S8         41   CT=JP 58163722 + CT=JP 61707080 + CT=JP 7142734 + CT=US 54-
             71330 + CT=US 5763301 + CT=US 5767531 + CT=US 5818067 + CT=US
             5861656 + CT=US 6147667 + CT=US 6246070
S9         62   CG=JP 58163722 + CG=JP 61707080 + CG=JP 7142734 + CG=US 54-
             71330 + CG=US 5763301 + CG=US 5767531 + CG=US 5818067 + CG=US
             5861656 + CG=US 6147667 + CG=US 6246070
S10         7   PN=JP 58163722 + PN=JP 61707080 + PN=JP 7142734 + PN=US 54-
             71330 + PN=US 5763301 + PN=US 5767531 + PN=US 5818067 + PN=US
             5861656 + PN=US 6147667 + PN=US 6246070
? s s5:s10
     S11      110  S5:S10
? s pn=cn 1360350
     S12        0  PN=CN 1360350
? s pn=jp 2002318555
     S13        0  PN=JP 2002318555
? s pn=us 2002079503
     S14        0  PN=US 2002079503
? s pn=us 20020079503
     S15        0  PN=US 20020079503
S16         2   S11 AND LINES
S17         0   S11 AND PLAT????
S18         0   S11 AND ELECTROPLAT?
S19         0   S11 AND METALPLAT?
S20         0   S11 AND ELECTRODEP?
S21        30   S11 AND ELECTRO???????????
S22        13   S11 AND (POLY??????? OR OLED? ? OR ORGANIC???????? OR ORGA-
             NO???????????)
S23      5526   IC=H01L-033?
S24         3   11AND23
S25     37269   IC=H01L-027?
S26      2595   IC=H05B-033?
S27      9376   IC=G09F-009?
S28        47   S11 AND S25:S27
     S29       72  S21:S22 OR S24 OR S28
? map pn
Processing MAP

27 Select Statement(s), 351 Search Term(s)
Serial#SD521

1 SearchSaves,  351 Search Term(s)
? s (s16 or s22 or s24)
                  2  S16
                 13  S22
                  3  S24
     S30         16  (S16 OR S22 OR S24)
? map pn

9 Select Statement(s), 104 Search Term(s)
Serial#SD522

1 SearchSaves,  104 Search Term(s)
? b 350 347;ex;ex sd521
       11sep03 07:00:52 User259284 Session D2378.3

SYSTEM:OS  - DIALOG OneSearch
  File 350:Derwent WPIX  1963-2003/UD,UM &UP=200358
         (c) 2003  Thomson Derwent
  File 347:JAPIO  Oct 1976-2003/May(Updated 030902)
         (c) 2003 JPO & JAPIO
*File 347: JAPIO data problems with year 2000 records are now fixed.
Alerts have been run.  See HELP NEWS 347 for details.
```

[redacted]earch 9/11/2003 10/022,262

Set	Items	Description
S1	50	S1:S8
S2	187	S2:S27
S3	140	S2 NOT S1
S4	11	S1 AND (LINES OR ELECTROPLAT? OR PLAT?????? OR METALPLAT??-?????? OR ELECTRODEP?)
S5	20	S1 AND METAL?????????
S6	13	S5 NOT S4
S7	166	S1:S2 NOT S4:S5
S8	14	S7 AND (OLED OR ORGANIC??)
S9	14	S7 AND (OLED? ? OR ORGANIC??)
S10	2	PN=JP 61252648

6447 102336

SEARCH REQUEST FORM Scientific and Technical Information Center - EIC2800

Rev. 8/27/01 This is an experimental format -- Please give suggestions or comments to Jeff Harrison, CP4-9C18, 306-5429.

Date 8/25/03 Serial # 10/022,262 Priority Application Date 12-21-00

Your Name David Hogans Examiner # 79069

AU 2813 Phone 305-3361 Room CP4-4014

In what format would you like your results? Paper is the default. PAPER DISK EMAIL

If submitting more than one search, please prioritize in order of need.

The EIC searcher normally will contact you before beginning a prior art search. If you would like to sit with a searcher for an interactive search, please notify one of the searchers.

Where have you searched so far on this case?

Circle: USPT DWPI ~~EPO Abs~~ JPO Abs IBM TDB

08-26-03 P12:43

Other:

What relevant art have you found so far? Please attach pertinent citations or Information Disclosure Statements. Examiners Search notes in back

What types of references would you like? Please checkmark:

Primary Refs ✓ Nonpatent Literature ✓ Other ____

Secondary Refs ___ Foreign Patents ✓

Teaching Refs ___

What is the topic, such as the **novelty**, motivation, utility, or other specific facets defining the desired **focus** of this search? Please include the concepts, synonyms, keywords, acronyms, registry numbers, definitions, structures, strategies, and anything else that helps to describe the topic. Please attach a copy of the abstract and pertinent claims.

L52 ANSWER 12 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 1992:203319 HCAPLUS
DN 116:203319
TI Thin-film formation by micelle electrolysis
IN Ono, Yoshihiro; Matsushima, Fumiaki; Ogino, Nariyuki; Matsui, Kuniyasu
PA Seiko Epson Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C25D013-02
ICS C25D013-04; C25D013-10; G02B005-20; **G09F009-00**
ICA G02F001-1335
CC 72-9 (Electrochemistry)
Section cross-reference(s): 52, 66, 74
FAN.CNT 9

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 04000397	A2	19920106	JP 1990-99528	19900416
	JP 2906568	B2	19990621		
	WO 9427173	A1	19941124	WO 1994-JP780	19940513
	W: JP, US				
	JP 3044788	B2	20000522	JP 1994-525241	19940513
	US 5705302	A	19980106	US 1995-468479	19950606
PRAI	US 1989-344636	B2	19890428		
	JP 1989-179504	A	19890712		
	JP 1989-194497	A	19890727		
	JP 1989-290519	A	19891108		
	JP 1990-70308	A	19900320		
	JP 1990-96913	A	19900412		
	JP 1990-99528	A	19900416		
	JP 1990-99529	A	19900416		
	JP 1990-101110	A	19900417		
	US 1990-552274	B1	19900712		
	JP 1993-111853	A	19930513		
	JP 1993-184135	A	19930726		
	JP 1993-184136	A	19930726		
	JP 1993-200864	A	19930812		
	US 1994-183204	A2	19940118		
	US 1994-367287	B2	19940513		
	WO 1994-JP780	W	19940513		
	US 1995-406263	A2	19950317		

AB The title method involves: (1) prepg. a micelle soln. contg. a surfactant (which becomes charged upon electrolysis), an inorg. or org. dispersed colloid, a support electrolyte, and electrodeposition soln.; (2) carrying out a 1st electrolysis at on electrodeposition potential lower than the micelle-breakage potential to form a film on a pigment-dye film; and (3) carrying out a 2nd electrolysis at a higher deposition potential to form a fine-particle **film** of the **org.** or inorg. colloid. The method is useful for manuf. of a display panel.

IT **Electrodeposition and Electroplating**
(by micelle electrolysis)
IT Micelles
(electrolysis of, in film deposition)
IT Optical imaging devices
(liq.-crystal, film deposition for manuf. of color filters for)
IT **147-14-8**, Copper phthalocyanine **147-14-8D**, Copper phthalocyanine, brominated and chlorinated
RL: PRP (Properties)
(electrophoretic deposition in bath contg., by micelle electrolysis)
RN 147-14-8 HCAPLUS
CN Copper, [29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)

39/9/27
DIALOG(R)File 2:INSPEC

5264326 INSPEC Abstract Number: A9612-8280-025, B9606-4260D-019
Title: Characterization of **polymeric light emitting** diodes by SIMS depth profiling analysis
Author(s): Sauer, G.; Kilo, M.; Hund, M.; Wokaun, A.; Karg, S.; Meier, M. ; Riess, W.; Schwoerer, M.; Suzuki, H.; **Simmerer, J.**; Meyer, H.; Haarer, D.
Author Affiliation: Lehrstuhl fuer Phys. Chemie, Bayreuth Univ., Germany
Journal: Fresenius` Journal of Analytical Chemistry Conference Title: Fresenius` J. Anal. Chem. (Germany) vol.353, no.5-8 p.642-6
Publisher: Springer-Verlag,
Publication Date: Nov.-Dec. 1995 Country of Publication: West Germany
CODEN: FJACES ISSN: 0937-0633
SICI: 0937-0633(199511/12)353:5/8L.642:CPLE;1-Z
Material Identity Number: D121-96001
Conference Title: 8. Arbeitstagung Angewandte Oberflachenanalytik `AOFA 8` (`Applied Surface Analysis`)
Conference Date: 5-8 Sept. 1994 Conference Location: Kaiserslautern, Germany
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)
Treatment: Experimental (X)
Abstract: SIMS depth profiling experiments have been used to elucidate the layered structure, the impurity distribution, and current induced changes in **polymeric light emitting** diodes (LEDs). In the first investigated system (ITO/PPV/Al), a poly-p-phenylene-vinylene (PPV) layer has been deposited onto an indium/tin oxide (ITO) glass support, and covered by an aluminium top electrode. A well defined aluminium oxide interlayer has been found in between the polymer and the Al overlayer. Furthermore, an enrichment of chlorine has been detected at both electrode-polymer interfaces, a residue from the polymer preparation process. This observation points to a chemical reaction between the electrodes and elimination products that are liberated during the thermal decomposition of the polymer precursor. In the second system, three different polymeric layers have been spin-coated onto an ITO substrate, i.e. a pure poly-methylphenylsilane (PMPS) layer, a second PMPS layer doped with an organic dye, and finally a polystyrene (PS) layer containing an oxadiazole derivative. By the addition of a bromine containing label into the first layer, it can be shown that the two PMPS layers have been diffusing into each other, whereas the PMPS and the PS regions have remained well separated. As found with the single layer devices, the formation of an interfacial oxide layer between the PS layer and the Al top electrode has been observed. Investigations of driven multilayer LEDs have provided evidence for drastic current-induced degradation effects. (18 Refs)
Subfile: A B
Descriptors: chemical reactions; impurity distribution; interface phenomena; light emitting diodes; mass spectroscopic chemical analysis; optical polymers; secondary ion mass spectra; substrates
Identifiers: **polymeric light emitting** diodes; SIMS depth profiling analysis; layered structure; impurity distribution; current induced changes; ITO PPV Al; glass support; aluminium top electrode; oxide interlayer; chemical reactions; precursor thermal decomposition; poly methylphenylsilane layer; polystyrene layer; oxadiazole derivative; interfacial oxide layer; current induced degradation effects; 50 to 600 nm

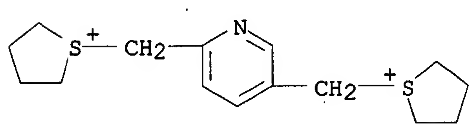
L69 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 1997:250030 HCAPLUS
DN 126:318281
TI Microfabrication of an **electroluminescent** polymer light **emitting** diode **pixel** array
AU Faraggi, E. Z.; Davidov, D.; Cohen, G.; Noach, S.; Golosovsky, M.; Avny, Y.; Neumann, R.; Lewis, A.
CS Racah Institute of Physics, The Hebrew University of Jerusalem, Jerusalem, 91904, Israel
SO Synthetic Metals (1997), 85(1-3), 1187-1190
CODEN: SYMEDZ; ISSN: 0379-6779
PB Elsevier
DT Journal
LA English
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 36, 73, 76
AB A method was developed for micro-fabrication of a light **emitting** diode (**LED**) **pixel** array of conjugated **electroluminescent** polymers sandwiched between ITO and aluminum. The method, based on direct photoablation using a 193 nm excimer laser, maintains intact the properties of the polymer, in this case, poly(1,4-phenylenevinylene-2,6-pyridylenevinylene). The technique was used to produce an array of 20 .mu.m .times. 20 .mu.m **pixels** with enhanced **electroluminescence** (**EL**) from **pixels**. The method can be extended to achieve nanometer size, using near-field nanolithog. The micro-fabrication of the **LED** array requires also the patterning of the ITO and the aluminum electrodes. For better performance of the device it is important to map the **cond.** of the **patterned electrodes**. For that purpose a novel mm-wave **cond.** microscope was used, which is capable to measure the local **cond.** of the patterned film with a spatial resoln.. of .apprx.10-30.mu.m.
IT **7429-90-5**, Aluminum, uses **176772-53-5**
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(laser ablation of poly(phenylene vinylene - pyridylene vinylene) layer in micro-fabrication of light **emitting** diode **pixel** array)
RN 7429-90-5 HCAPLUS
CN Aluminum (8CI, 9CI) (CA INDEX NAME)

Al

RN 176772-53-5 HCAPLUS
CN Thiophenium, 1,1'-[1,4-phenylenebis(methylene)]bis[tetrahydro-, dichloride, polymer with 1,1'-[2,5-pyridinediylbis(methylene)]bis[tetrahydrothiophenium] dichloride (9CI) (CA INDEX NAME)

CM 1

CRN 155651-65-3
CMF C15 H23 N S2 . 2 Cl



2 Cl^-

L35 ANSWER 3 OF 12 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 1998:357576 HCAPLUS
DN 129:87811
TI Base plate structure of organic **electroluminescent** device and manufacture thereof
IN Wakabayashi, Morimitsu; Fukumoto, Shigeru; Niho, Tetsuya
PA Hokuriku Electric Industry Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM **H05B033-10**
ICS H05B033-28
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 74, 76
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10149879	A2	19980602	JP 1996-326061	19961120
PRAI	JP 1996-326061		19961120		

AB The invention provides a structure and manufg. process for the base plate of an org. **electroluminescent** device, used for flat displays and light sources, thus the base plate is characterized in that the manufg. process comprises the steps of: forming a patterned transparent electrode on a 1st substrate; forming an insulating layer on the patterned transparent electrode; forming a 2nd substrate layer on the insulating layer; and removing the 1st substrate to produce a flat surface that is deposited by org. layers including a light-**emitting** layer. The device structure produced in this process prevents elec. short circuits between electrodes, often seen in previous articles.
IT **7429-90-5**, Aluminum, uses
RL: DEV (Device component use); USES (Uses)
(base **plate** structure of org. **electroluminescent** device and manuf. thereof)
RN 7429-90-5 HCAPLUS
CN Aluminum (8CI, 9CI) (CA INDEX NAME)

Al

27/9/3
DIALOG(R)File 2:INSPEC

6099895 INSPEC Abstract Number: A9902-7340N-002, B9901-2530G-006
Title: Photoemission spectroscopy of LiF coated Al and Pt electrodes
Author(s): Schlaf, R.; Parkinson, B.A.; Lee, P.A.; Nebesny, K.W.; Jabbour, G.; Kippelen, B.; Peyghambanan, N.; Armstrong, N.R.
Author Affiliation: Dept. of Chem., Colorado State Univ., Fort Collins, CO, USA
Journal: Journal of Applied Physics vol.84, no.12 p.6729-36
Publisher: AIP,
Publication Date: 15 Dec. 1998 Country of Publication: USA
CODEN: JAPIAU ISSN: 0021-8979
SICI: 0021-8979(19981215)84:12L.6729:PSCE;1-7
Material Identity Number: J004-98023
U.S. Copyright Clearance Center Code: 0021-8979/98/84(12)/6729(8)/$15.00
Document Number: S0021-8979(98)01624-7
Language: English Document Type: Journal Paper (JP)
Treatment: Experimental (X)
Abstract: Thin lithium fluoride (LiF) interlayers between the low work function electrode and the electron transport layer in **organic light emitting** diodes (OLED) result in improved device performance. We investigated the electronic structure of LiF coated Al and Pt electrodes by X-ray photoemission spectroscopy (XPS) and ultraviolet photoemission spectroscopy (UPS). Thin LiF films were grown in several steps onto Ar/sup +/ sputtered Al and Pt foils. After each growth step the surfaces were characterized in situ by XPS and UPS measurements. After evaluating band bending, work function and valence band offset for both samples, their band lineups were determined. Our measurements indicate that despite the insulating character of LiF in both samples, band bending is present in the LiF layer. The difference in band bending between the samples allows the conclusion that the driving force for the development of the band bending results from the contact potential between the metal and the LiF overlayer. The band bending is most likely caused by a redistribution of charged Frenkel or Schottky type defects within the LiF layer. The work function of both samples after LiF deposition was dramatically lowered compared to the values obtained on the clean sputtered metal surfaces. (29 Refs)
Subfile: A B

L19 ANSWER 4 OF 9 HCAPLUS

AN 1999:210051 HCAPLUS
DN 130:274208
TI Manufacture of **electroluminescent** display device, of hole-injecting and transporting material; and of light-**emitting** material
IN Kiguchi, Hiroshi; Kobayashi, Hidekazu
PA Seiko Epson Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H05B033-10
ICS C25D013-04; H05B033-14; H05B033-22
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 42
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11087054	A2	19990330	JP 1997-237104	19970902
	JP 2003100463	A2	20030404	JP 2002-266880	19970902
PRAI	JP 1997-237104	A3	19970902		

AB The **EL** display device consists of a transparent support, an anode pattern on the support, a hole-injecting and transporting layer on the anode, and a light-**emitting** layer of red, green, and blue patterns on the hole-transporting layer and the device is manufd. by a process including formation and arrangement of the light-**emitting** layer or the hole-transporting layer by adsorbing a surfactant on the surface of the light-**emitting** material or the hole-transporting material so that the material forms micelles in an aq. soln., dipping the transparent support in the soln., and forming the layer by electrolysis coating. The hole-transporting layer and light-**emitting** layer is manufd. by a process including coupling of the surface with a hydrophobic compd. to make the surface hydrophobic or graft polymg. on the surface to form a hydrophobic grafted polymer. The light-**emitting** layer and the hole-transporting layer can be patternwise formed and the film thickness can be under control.

IT **Electrodeposition**
Electroluminescent devices
IT 147-14-8, Copper phthalocyanine
RL: DEV (Device component use); USES (Uses)
(hole-injecting material; manuf. of **electroluminescent** display device including micelle electrolysis coating for forming light-**emitting** layer or hole-transporting layer)

26/9/1
DIALOG(R)File 2:INSPEC

6228035 INSPEC Abstract Number: B1999-06-4260D-003
Title: Impact of the cathode metal work function on the performance of vacuum-deposited **organic light emitting**-devices
Author(s): Stossel, M.; Staudigel, J.; Steuber, F.; Simmerer, J.; Winnacker, A.
Author Affiliation: ZT MF 6, Siemens Corporate Technol., Erlangen, Germany
Journal: Applied Physics A (Materials Science Processing) vol.A68, no.4 p.387-90
Publisher: Springer-Verlag,
Publication Date: April 1999 Country of Publication: Germany
CODEN: APAMFC ISSN: 0947-8396
SICI: 0947-8396(199904)A68:4L.387:ICMW;1-W
Material Identity Number: D218-1999-004
Language: English Document Type: Journal Paper (JP).
Treatment: Experimental (X)
Abstract: The efficiency of **organic light-emitting** devices is significantly influenced by the performance of the electron-injecting contact. Lowering the energetic barrier between the metal contact and the lowest unoccupied molecular orbital of the adjacent organic electron transport layer should facilitate the injection of negative charge carriers, and, thus, improve the electroluminescence yield by increasing the electron density in the emitting zone. Therefore, it is widely believed that lowering the work function of the cathode metal will improve the quantum efficiency of the devices and, concomitantly, reduce the operating voltage. Here, we report on measurements of devices with tris(8-hydroxyquinolinolato)aluminum-(III) as electron transport and emissive layer. The latter layer is contacted with a variety of chemically very different cathode metals (including some lanthanides), which cover a range from 2.63 eV up to 4.70 eV on the work function axis. We demonstrate the existence of an efficiency maximum at a work function of about 3.7 eV which, to the best of our knowledge, has not been reported yet. These results are of practical importance with respect to the choice of pure cathode **metals** for organic **electroluminescent** display applications. (25 Refs)
Subfile: B
Chemical Indexing:
Yb el (Elements - 1)
Sm el (Elements - 1)
Li el (Elements - 1)
Ca el (Elements - 1)
Mg el (Elements - 1)
Al el (Elements - 1)
Ag el (Elements - 1)
Zn el (Elements - 1)
Cu el (Elements - 1)

L52 ANSWER 2 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 2002:103543 HCAPLUS
DN 136:143798
TI Thin-film field-effect transistor with organic-inorganic hybrid semiconductor requiring low operating voltages
IN Dimitrakopoulos, Christos Dimitrios; Kagan, Cherie Renee; Mitzi, David Brian
PA International Business Machines Corporation, USA
SO U.S., 17 pp., Cont.-in-part of U.S. Ser. No. 323,804.
CODEN: USXXAM
DT Patent
LA English
IC ICM H01L035-24
NCL 257040000
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 74
FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6344662	B1	20020205	US 2000-703964	20001101
	US 5981970	A	19991109	US 1997-827018	19970325
	US 6210479	B1	20010403	US 1999-259128	19990226
	US 6344660	B1	20020205	US 1999-323804	19990602
	JP 2002198539	A2	20020712	JP 2001-332113	20011030
PRAI	US 1997-827018	A1	19970325		
	US 1999-259128	A2	19990226		
	US 1999-323804	A2	19990602		
	US 2000-703964	A	20001101		

AB A thin film transistor (TFT) device structure based on an org.-inorg. hybrid semiconductor material, that exhibits a high field effect mobility, high current modulation at lower operating voltages than the current state of the art org.-inorg. hybrid TFT devices. The structure comprises a suitable substrate disposed with the following sequence of features: a set of conducting gate electrodes covered with a high dielec. const. insulator, a **layer** of the **org.**-inorg. hybrid semiconductor, sets of elec. conducting source and drain electrodes corresponding to each of the gate **lines**, and an optional passivation layer that can overcoat and protect the device structure. Use of high dielec. const. gate insulators exploits the gate voltage dependence of the org.-inorg. hybrid semiconductor to achieve high field effect mobility levels at very low operating voltages. Judicious combinations of the choice of this high dielec. const. gate insulator material and the means to integrate it into the org.-inorg. hybrid based TFT structure are taught that would enable easy fabrication on glass or plastic substrates and the use of such devices in flat panel display applications.

IT Conducting polymers
Dielectric films
Electric contacts
Electrodeposition
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(thin-film field-effect transistor with org.-inorg. hybrid semiconductor requiring low operating voltages)
RN 7429-90-5 HCAPLUS
CN Aluminum (8CI, 9CI) (CA INDEX NAME)

Al

RN 7440-50-8 HCAPLUS
CN Copper (7CI, 8CI, 9CI) (CA INDEX NAME)

39/9/18
DIALOG(R)File 2:INSPEC

6593997 INSPEC Abstract Number: A2000-12-7865T-017
Title: Cathode-induced luminescence quenching in polyfluorenes
Author(s): Stoessel, M.; Wittmann, G.; **Staudigel, J.**; **Steuber, F.**; Blassing, J.; Roth, W.; Klausmann, H.; Rogler, W.; **Simmerer, J.**; **Winnacker, A.**; Inbasekaran, M.; Woo, E.P.
Author Affiliation: Corp. Technol., Siemens AG, Erlangen, Germany
Journal: Journal of Applied Physics vol.87, no.9, pt.1-3 p.4467-75
Publisher: AIP,
Publication Date: 1 May 2000 Country of Publication: USA
CODEN: JAPIAU ISSN: 0021-8979
SICI: 0021-8979(20000501)87:9:1/3L.4467:CILQ;1-Q
Material Identity Number: J004-2000-009
U.S. Copyright Clearance Center Code: 0021-8979/2000/87(9)/4467(9)/$17.00
Document Number: S0021-8979(00)08909-X
Language: English Document Type: Journal Paper (JP)
Treatment: Practical (P); Experimental (X)
Abstract: We investigate the impact of the deposition of low work function **metals** such as calcium on thin layers of fluorene-type polymers by time-of-flight secondary ion mass spectroscopy. An implantation process rather than a slow **metal** diffusion is found to be the most probable source of **metal** contamination within the polymer layers. This contamination extends to a range of several tens of nanometers in the organic layers. Photoluminescence and electroluminescence measurements are performed with varying calcium layer thicknesses. The luminescence efficiency exhibits a strong correlation with the depth profile of the calcium present within the polymer. The results are discussed with respect to the exciton diffusion length in the fluorene polymer. A numerical model including exciton formation, migration, and quenching is proposed in order to describe the observed phenomena. (29 Refs)
Subfile: A
Descriptors: calcium; electroluminescence; photoluminescence; polymer films; secondary ion mass spectra; surface diffusion; work function
Identifiers: cathode-induced luminescence quenching; polyfluorenes; low work function; time-of-flight secondary ion mass spectroscopy; implantation process; slow **metal** diffusion; **metal** contamination; photoluminescence; electroluminescence; exciton formation; migration; quenching

39/9/16
DIALOG(R)File 2:INSPEC

6676729 INSPEC Abstract Number: A2000-18-7330-002, B2000-09-4260D-029
Title: Electron injection and transport in 8-hydroxyquinoline aluminum
Author(s): **Stossel, M.; Staudigel, J.; Steuber, F.;** Blassing, J.; **Simmerer, J.; Winnacker, A.;** Neuner, H.; Metzdorf, D.; Johannes, H.-H.; Kowalsky, W.
Author Affiliation: Corporate Technol., Siemens, Erlangen, Germany
Journal: Synthetic Metals Conference Title: Synth. Met. (Switzerland) vol.111-112 p.19-24
Publisher: Elsevier,
Publication Date: 1 June 2000 Country of Publication: Switzerland
CODEN: SYMEDZ ISSN: 0379-6779
SICI: 0379-6779(20000601)111/112L.19:EITH;1-Y
Material Identity Number: S253-2000-010
U.S. Copyright Clearance Center Code: 0379-6779/2000/$20.00
Conference Title: 2nd International Conference on Electroluminescence of Molecular Materials and Related Phenomena
Conference Date: 15-18 May 1999 Conference Location: Sheffield, UK
Document Number: S0379-6779(99)00406-3
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)
Treatment: Experimental (X)
Abstract: We have measured the current-voltage characteristics and device efficiency of **organic light emitting** diodes (OLEDs) based on 8-hydroxyquinoline aluminum (Alq/sub 3/) in combination with several cathode layer setups. The electron injection properties of cathode **metals** evaporated under high vacuum (HV) and ultra-high vacuum (UHV) conditions are compared. Further, cathodes incorporating a thin layer of lithium fluoride, which is covered with a **metal** capping layer, are investigated. It will be shown that aluminum is an outstanding capping **metal** and significantly improves both electron injection and device efficiency. Quasi-static and transient current-voltage measurements on single-layer devices will be presented. It will be demonstrated that cathodes, comprising 0.2 nm LiF and aluminum, are able to sustain space charge limited currents in Alq/sub 3/. Additionally, the efficiency and lifetime data of multi-layer devices using this cathode layer setup are discussed. (18 Refs)
Subfile: A B
Descriptors: charge injection; light emitting diodes; organic compounds; space-charge-limited conduction; work function
Identifiers: hydroxyquinoline aluminum; electron injection; electron transport; current-voltage characteristics; device efficiency; **organic light emitting** diodes; **metal** capping layer; charge limited currents; cathode layer setup; work function

L25 ANSWER 13 OF 28 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 2000:107002 HCAPLUS
DN 132:152978
TI Anisotropically conductive adhesives and electronic/electric apparatus using the adhesives
IN Miyamoto, Tetsuya; Kawata, Masakazu
PA Sumitomo Bakelite Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C09J009-02
ICS C09J011-06; G02F001-1345; H01B001-20; H01B005-16; H01R011-01
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 74, 76
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000044905	A2	20000215	JP 1999-66546	19990312
	CN 1242403	A	20000126	CN 1999-103372	19990318
PRAI	JP 1998-68530	A	19980318		
	JP 1998-141471	A	19980522		

OS MARPAT 132:152978
AB Adhesives for low-temp. and quick connection comprise conductive particles dispersed in resin compns. contg. radically polymerizable resins, org. peroxides, thermoplastic elastomers, H3PO4 esters (RO)lPO(OH)m, R = CH2:CR1CO(OR2)n, R1 = H, Me, R2 = C2H4, C3H6, CH2CHMe, C4H8, C5H10, C8H12, C2H4OCOC5H10, n = 1-10, and l, m = 1, 2, and optionally epoxysilane coupling agents. Thus, an adhesive contained a 50% soln. of a methacryloyl group-contg. phenol novolak resin 200, a 50% bismaleimide resin soln. 350, 1,1,3,3-tetramethylbutylperoxy 2-ethylhexanoate 5, a 20% acrylonitrile-butadiene-methacrylic acid copolymer rubber 500, caprolactone-modified (meth)acryloyloxyethyl acid phosphate 5.0, and Ni-Au-plated polystyrene granules 7.0 parts.
IT Communication
Computers
Coupling agents
Crosslinking catalysts
Electric apparatus
Electroluminescent devices
IT **Electrodeposition**
(nickel-gold plated polystyrene; anisotropically conductive adhesives contg. radically polymerizable resins and peroxides and thermoplastic elastomers and phosphate esters and epoxysilane coupling agents for electronic app.)
IT **7440-57-5**, Gold, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(nickel-gold **plated** polystyrene; anisotropically conductive adhesives contg. radically polymerizable resins and peroxides and thermoplastic elastomers and phosphate esters and epoxysilane coupling agents for electronic app.)
RN 7440-57-5 HCAPLUS
CN Gold (8CI, 9CI) (CA INDEX NAME)

Au

L25 ANSWER 10 OF 28 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 2000:785938 HCAPLUS
DN 133:315395
TI (Hydroxyphenyl)pyridine derivative, its metal complexes and application as **electroluminescence** material
IN Wang, Yue; Wu, Ying; Li, Yanqin; Liu, Yu; Lu, Dan; Shen, Jiacong
PA Jilin Univ., Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 23 pp.
CODEN: CNXXEV
DT Patent
LA Chinese
IC ICM C09K011-07
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76, 78
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1245822	A	20000301	CN 1999-118700	19990905
	CN 1107098	B	20030430		
PRAI	CN 1999-118700		19990905		

AB The title complexes with Zn, Be, Mg, Ca, B, Al, Ga, or In, etc., useful as **electroluminescence** material being capable of **emitting** blue, red, yellow, orange, and white lights, are prepd. Some ligands such as 2-(2-pyridyl)phenol, 2,6-bis(2-hydroxyphenyl)pyridine, 4-nitro-2-(2-pyridyl)phenol, 4-hydroxy-3-benzonitrile, 4-nitro-3-(4-phenyl-2-pyridyl)benzonitrile, 4-methyl-2-(4-methyl-2-pyridyl)phenol, 4- methoxy-2-(4-methoxy-2-pyridyl)phenol, 2-(4-dimethylamino-2-pyridyl)phenol, 2-(4-phenyl-2-pyridyl)phenol, 2,4-bis(2- pyridyl)phenol, 2,6-bis(2-hydroxyphenyl)-4-methylpyridine, N,N'-bis(3-methylphenyl)-N,N'-diphenylbenzidine are also synthesized. Some **electroluminescent** devices contg. the metal complexes as phosphors, ITO, polymeric materials, etc. were manufd. by vapor deposition and **electroplating**.

1/9/1   (Item 1 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

08727336   Genuine Article#: 322EB   Number of References: 8
Title: Degradation mechanisms in organic light emitting diodes
Author(s): Shen J (REPRINT) ; Wang D; Langlois E; Barrow WA; Green PJ; Tang CW; Shi J
Corporate Source: ARIZONA STATE UNIV,DEPT ELECT ENGN/TEMPE//AZ/85287 (REPRINT); ARIZONA STATE UNIV,CTR SOLID STATE ELECT RES/TEMPE//AZ/85287 ; ARIZONA STATE UNIV,DEPT CHEM BIO & MAT ENGN/TEMPE//AZ/85287; PLANAR SYST,/BEAVERTON//OR/97006; EASTMAN KODAK CO,/ROCHESTER//NY/14650
Journal: SYNTHETIC METALS, 2000, V111 (JUN 1), P233-236
ISSN: 0379-6779   Publication date: 20000601
Publisher: ELSEVIER SCIENCE SA, PO BOX 564, 1001 LAUSANNE, SWITZERLAND
Language: English   Document Type: ARTICLE
Geographic Location: USA
Subfile: CC PHYS--Current Contents, Physical, Chemical & Earth Sciences
Journal Subject Category: PHYSICS, CONDENSED MATTER; MATERIALS SCIENCE; POLYMER SCIENCE
Abstract: Lifetime measurement results on organic light emitting diodes (**OLEDs**) are presented and analyzed. The drive voltage tends to increase and the luminance tends to decrease with operating time. Upon the reversal of the polarity of the external field, the voltage trends are reversed almost completely and the luminance trends undergo weak changes. It is suggested that mobile ions can be the cause of the observed voltage changes. Mobile ion transient equations are solved and their time-dependent distributions are obtained. The mobile ion induced voltage changes are also calculated and fitted to the experiment. The agreement between the calculation and experiment suggest that the mobile ions can indeed be the origin of the observed device degradation phenomenon. (C) 2000 Elsevier Science S.A. All rights reserved.
Descriptors--Author Keywords: organic ; electroluminescent ; **OLED** ; mobile ions ; lifetime ; degradation
Cited References:

39/9/15
DIALOG(R)File 2:INSPEC

6676739 INSPEC Abstract Number: B2000-09-4260D-035
Title: Activation energies in **organic light emitting** diodes comprising ohmic contacts both for electron and hole injection
Author(s): **Staudigel, J.; Stossel, M.; Steuber, F.;** Blassing, J.; **Simmerer, J.**
Author Affiliation: Corporate Technol., Siemens, Erlangen, Germany
Journal: Synthetic Metals Conference Title: Synth. Met. (Switzerland) vol.111-112 p.69-73
Publisher: Elsevier,
Publication Date: 1 June 2000 Country of Publication: Switzerland
CODEN: SYMEDZ ISSN: 0379-6779
SICI: 0379-6779(20000601)111/112L.69:AEOL;1-J
Material Identity Number: S253-2000-010
U.S. Copyright Clearance Center Code: 0379-6779/2000/$20.00
Conference Title: 2nd International Conference on Electroluminescence of Molecular Materials and Related Phenomena
Conference Date: 15-18 May 1999 Conference Location: Sheffield, UK
Document Number: S0379-6779(99)00440-3
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)
Treatment: Experimental (X)
Abstract: The lowest obtainable operating voltage for **organic light emitting** diodes (OLEDs) utilising a predefined organic layer setup can only be achieved with ohmic contacts both for electron and hole injection. We have investigated dark current transients of unipolar single-layer samples, and we have found ohmic contacts both for hole injection at indium tin oxide (ITO)/4,4',4"-tris(N-(1-naphtyl)-N-phenylamino)-triphenylamine (1-Naphdata) interfaces and for electron injection at 8-hydroxyquinoline aluminum (Alq/sub 3/)/LiF/Al interfaces. Therefore, the properties of OLEDs comprising these two interfaces are governed only by bulk material properties and internal organic/organic interfaces. In order to identify the dominating mechanisms concerning the temperature-dependent behaviour of prototypical double layer OLEDs, we have measured (with respect to the applied electric field) the activation energies of the charge carrier mobility and of the steady state current density in 1-Naphdata (holes) and Alq/sub 3/ (electrons), the activation energies of the steady state current density and of the luminance in OLEDs comprising an 1-Naphdata/Alq/sub 3/ heterojunction, plus the activation energy of the luminance onset. These experimentally activation energies are discussed with respect to device performance in the typical operating temperature range of flat panel displays including implications for further device optimisation. (15 Refs)
Subfile: B
Descriptors: carrier mobility; charge injection; electroluminescence; light emitting diodes; ohmic contacts; organic compounds; space-charge-limited conduction
Identifiers: **organic light emitting** diodes; ohmic contacts; electron injection; hole injection; activation energy; dark current transients; hydroxyquinoline aluminum; internal organic organic interfaces; temperature-dependence; charge carrier mobility; steady state current density; space charge limited conduction

27/9/2
DIALOG(R)File 2:INSPEC

7160285 INSPEC Abstract Number: B2002-02-4260D-090
Title: The influence of LiF thickness on the built-in potential of blue **polymer light-emitting** diodes with LiF/Al cathodes
Author(s): Brown, T.M.; Millard, I.S.; Lacey, D.J.; Burroughes, J.H.; Friend, R.H.; Cacialli, F.
Author Affiliation: Cavendish Lab., Cambridge Univ., UK
Journal: Synthetic Metals Conference Title: Synth. Met. (Switzerland) vol.124, no.1 p.15-17
Publisher: Elsevier,
Publication Date: 3 Oct. 2001 Country of Publication: Switzerland
CODEN: SYMEDZ ISSN: 0379-6779
SICI: 0379-6779(20011003)124:1L.15:ITBP;1-0
Material Identity Number: S253-2001-013
U.S. Copyright Clearance Center Code: 0379-6779/01/$20.00
Conference Title: Symposium H on Molecular Photonics: from Macroscopic to Nanoscopic Applications of the 2000 E-MRS Spring Conference
Conference Date: 30 May-2 June 2000 Conference Location: Strasbourg, France
Document Number: S0379-6779(01)00412-X
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)
Treatment: Experimental (X)

- Pub date too new
- Conf date before priority date.

Abstract: We use electroabsorption to investigate the built-in potential of **polymer light-emitting** diodes with LiF/Al cathodes, as a function of the LiF thickness d. We find that the built-in potential increases with d, reaching a **plateau** at d<or=7 nm. The results, obtained on finished devices, imply a correspondent lowering of the cathode work function, which correlates with the device luminance and efficiency. Consequently, we demonstrate that the improvement in device performance, brought about by the thin LiF layers, is predominantly attributable to the reduction of the barrier height to electron injection. (7 Refs)
Subfile: B
Descriptors: brightness; conducting polymers; electroabsorption; light emitting diodes; lithium compounds; organic semiconductors; work function
Identifiers: LiF thickness effect; built-in potential; blue **polymer light-emitting** diodes; LiF/Al cathodes; electroabsorption; cathode work function; luminance; efficiency; barrier height reduction; electron injection; LiF; Al
Class Codes: B4260D (Light emitting diodes)
Chemical Indexing:
LiF int - Li int - F int - LiF bin - Li bin - F bin (Elements - 2)
Al int - **Al el** (Elements - 1)

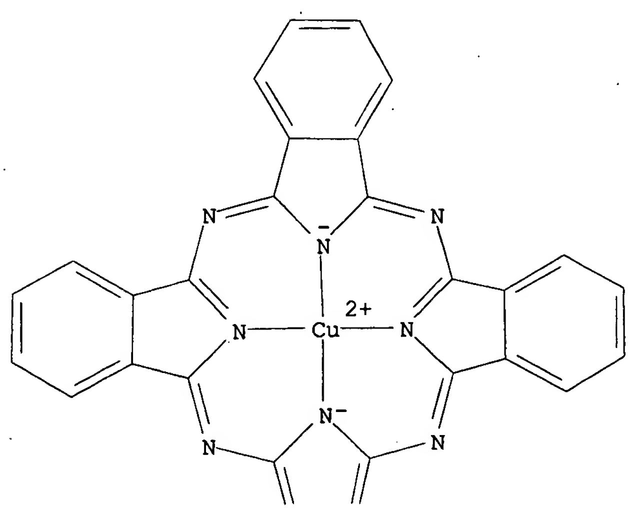
1999 priority
2001 pub.

L69 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 2001:29081 HCAPLUS
DN 134:93139
TI **Organic electroluminescent** devices
IN Fujiomori, Shigeo; Oka, Tetsuo; Ikeda, Takeshi
PA Toray Industries, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H05B033-26
ICS G09F009-30; H05B033-10; H05B033-12; H05B033-14
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001006881	A2	20010112	JP 1999-176504	19990623
PRAI	JP 1999-176504		19990623		

AB The devices, suitable for use in flat display panels, comprise: a glass substrate; an ITO 1st **electrode** stripe **array** (.dblvert. X); a SiO2 patterned insulator layer; a Cr/Cu spacer stripe array (.dblvert. Y) having a **resistivity** < 2 k.OMEGA./m lengthwise; a hole transport layer; a green, a red and a blue phosphor matrix array; an electron transport layer; and an Al 2nd **electrode** stripe **array** (.dblvert. Y).
IT **147-14-8**, Copper phthalocyanine **2085-33-8**, Tris(8-quinolinolato)aluminum **4061-32-9** **7429-90-5**, Aluminum, uses **7440-50-8**, Copper, uses
RL: DEV (Device component use); USES (Uses)
(**org. electroluminescent** devices)
RN 147-14-8 HCAPLUS
CN Copper, [29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)- (9CI) (CA INDEX NAME)

PAGE 1-A



1999 priority
2001 pub.

L69 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 2001:46275 HCAPLUS
DN 134:107690
TI **Organic electroluminescent** devices and manufacture
IN Wakai, Hitoshi
PA Nippon Seiki K. K., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H05B033-28
ICS H05B033-10; H05B033-14
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001015268	A2	20010119	JP 1999-182676	19990629
PRAI	JP 1999-182676		19990629		

AB The devices comprise: a glass substrate; an array of **patterned** ITO 1st **electrodes**; an auxiliary Al electrode bonding the ITO electrodes; an **org. electroluminescent** laminate; and a 2nd electrode.
IT **7429-90-5**, Aluminum, uses
RL: DEV (Device component use); USES (Uses)
(**org. electroluminescence** devices and manuf.)
RN 7429-90-5 HCAPLUS
CN Aluminum (8CI, 9CI) (CA INDEX NAME)

Al

5/2000 priority
2001 pub.

L69 ANSWER 5 OF 8 HCAPLUS
AN 2001:847754 HCAPLUS
DN 135:364303
TI Manufacture of **organic electroluminescent** devices
IN Shimotori, Hiroshi; Tadokoro, Toyoyasu
PA Nippon Seiki Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H05B033-10
ICS H05B033-14; H05B033-26
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001326076	A2	20011122	JP 2000-149792	20000517
PRAI	JP 2000-149792		20000517		

AB The devices comprise: (1) a transparent glass substrate; (2) an ITO 1st **electrode array** (.dblvert. X); (3) an **org. electroluminescent** structure; (4) an Al (or an AlLi or a MgAg) 2nd **electrode array** (.dblvert. Y); and (5) a UV cured resin sealant, where the laminate (1)-(5) are treated with a UV ozone or an O2 plasma so as to increase the **resistivity** between (2) and (4).
IT **7429-90-5**, Aluminum, uses
RL: DEV (Device component use); USES (Uses)
(manuf. of **org. electroluminescent** devices)
RN 7429-90-5 HCAPLUS
CN Aluminum (8CI, 9CI) (CA INDEX NAME)

Al

X

L52 ANSWER 3 OF 18 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 2002:27770 HCAPLUS
DN 136:77341
TI Organic electroluminescent display panel characterized by connecting **lines** among display electrodes
IN Okuyama, Kenichi; Nagayama, Kenichi; Moritani, Toru
PA Tohoku Pioneer Corporation, Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H05B033-26
ICS **G09F009-30; H05B033-14**
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 57, 76

– June 2000 priority

– Jan 2002 pub.

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002008871	A2	20020111	JP 2000-192735	20000627
PRAI	JP 2000-192735		20000627		

AB The device involves a display panel region comprising plurality of display electrodes and **org.** electroluminescent (EL) material **layers** on a substrate and elec. conductive **lines** connected to the display electrodes wherein the connecting **lines** are made of a material having elec. resistivity lower than that of the display electrodes. The device shows enhanced emission efficiency of the EL material and quality of displayed image because decrease of elec. voltage due high resistivity in the connection **lines** is avoided.
IT Electric circuits
Electrodes
Electroluminescent devices
(org. electroluminescent display panel characterized by connecting **lines** with low resistivity among display electrodes)
IT **7429-90-5**, Aluminum, uses
RL: DEV (Device component use); USES (Uses)
(org. electroluminescent display panel characterized by connecting **lines** with low resistivity among display electrodes)
RN 7429-90-5 HCAPLUS
CN Aluminum (8CI, 9CI) (CA INDEX NAME)

Al

L19 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 2002:143071 HCAPLUS
DN 136:191833
TI **Organic** light-**emitting** diode displays with reduced color cross-talk due to reflective barrier structures between sub-pixels, and methods of fabricating the displays
IN Ghosh, Amalkumar P.; Zhang, Rong
PA Emagin Corporation, USA
SO PCT Int. Appl., 24 pp.
CODEN: PIXXD2

2000 U.S. priority

DT Patent
LA English
IC ICM H01L051-00
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 72, 76
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002015292	A2	20020221	WO 2001-US25449	20010814
	WO 2002015292	A3	20020510		
	AU 2001083367	A5	20020225	AU 2001-83367	20010814
PRAI	US 2000-225403P	P	20000815		
	WO 2001-US25449	W	20010814		

AB Color **OLED** displays are discussed which employ reflective barrier structures between sub-pixels to eliminate color cross-talk effects and to reduce light loss. Some of the **OLED** displays described comprise a first substrate having a first **OLED** and a second **OLED** formed thereon; a first color filter formed on a second substrate and aligned over the first **OLED** and a second color filter formed on the second substrate and aligned over the second **OLED**; a patterned black matrix material between the first and the second color filters; a first color-changing material (CCM) having an upper surface adjacent to and formed on the first color filter and a lower surface opposite the upper surface and a second CCM having an upper surface adjacent to and formed on the second color filter and a lower surface opposite the upper surface; and a barrier structure formed on the patterned black matrix material and surrounding the first CCM and the second CCM and extending from the patterned black matrix material to the lower surfaces of the first and second CCM, but not covering the upper or lower surface of the CCMs, wherein the first **OLED** and the second **OLED** are adjacent to each other. Methods of fabricating the **OLED** displays are discussed which entail forming a black matrix material layer patterned into lines on a first substrate; forming a patterned color filter layer on the first substrate such that the patterned color filter material is adjacent to and surrounded by the patterned black matrix material on the substrate; forming a patterned CCM layer on the color filter layer; forming a barrier structure on the patterned black matrix material; and aligning the first substrate with a second substrate having .gtoreq.1 **OLED** formed on it. Methods for forming color **OLED** displays with a plurality of **OLED** stacks are also described.
IT 7440-02-0, Nickel, processes
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(barrier, electrode; **org.** light-**emitting** diode displays with reduced color cross-talk due to reflective metal barrier structures between sub-pixels and methods of fabricating the displays by **electroplating**)

L19 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2003 ACS on STN
AN 2002:429436 HCAPLUS
DN 137:13087
TI Organic **electroluminescent** devices sealed to prevent deterioration due to moisture and oxygen penetration, methods for manufacturing the organic **electroluminescent** devices, and electronic apparatus employing the devices
IN Kobayashi, Hidekazu
PA Seiko Epson Corporation, Japan
SO U.S. Pat. Appl. Publ., 13 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM H05B033-00
NCL 428690000
CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 74, 76
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002068191	A1	20020606	US 2001-962460	20010926
	JP 2002175877	A2	20020621	JP 2001-292643	20010925
PRAI	JP 2000-294332	A	20000927		
	JP 2001-292643	A	20010925		

AB Org. **electroluminescent** devices are described which comprise at least a first electrode, a light-**emitting** layer, and a second electrode between a substrate and a protection member; and a cover member which has a gas barrier property and which is disposed at an end face side of the substrate so that the cover member covers a part of the substrate and a part of the protection member. Methods for manufg. the org. **electroluminescent** devices are also discussed which entail forming at least the first electrode, the light-**emitting** layer, and the second electrode on the substrate; attaching the substrate and the protection member to each other; and disposing a cover member having a gas barrier property at end face sides of the substrate so that the cover member covers a part of the substrate and a part of the protection member. Electronic devices employing the org. **electroluminescent** devices are also discussed.
IT Metals, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(cover member; org. **electroluminescent** devices sealed to prevent deterioration due to moisture and oxygen penetration and contg.)
IT **7429-90-5**, Aluminum, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(cathode layer, cover **plate**; org. **electroluminescent** devices sealed to prevent deterioration due to moisture and oxygen penetration and contg.)

L69 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2003 ACS on STN

2002 pub date
11/2000 priority

AN 2002:447335 HCAPLUS
DN 137:12997
TI **Organic electroluminescent** devices
IN Minakami, Makoto
PA Victor Co. of Japan, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H05B033-26
ICS H05B033-14; H05B033-28
CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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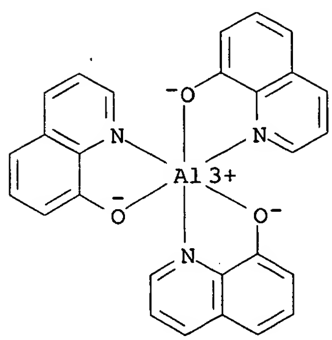
PI	JP 2002170688	A2	20020614	JP 2000-364434	20001130
PRAI	JP 2000-364434		20001130		

AB The devices comprise: a glass substrate; a metal stripe **array**; an ITO 1st **electrode**; and a carrier transport, a phosphor and a 2nd electrode layer., where the substrate may be replaced by Si having a TFT active matrix.
IT **2085-33-8**, Tris(8-quinolinolato)aluminum **7429-90-5**, Aluminum, uses **123847-85-8**, .alpha.-NPD
RL: DEV (Device component use); USES (Uses)
(**org. electroluminescent** devices)
RN 2085-33-8 HCAPLUS
CN Aluminum, tris(8-quinolinolato-.kappa.N1,.kappa.O8)- (9CI) (CA INDEX NAME)



RN 7429-90-5 HCAPLUS
CN Aluminum (8CI, 9CI) (CA INDEX NAME)

Al

RN 123847-85-8 HCAPLUS
CN [1,1'-Biphenyl]-4,4'-diamine, N,N'-di-1-naphthalenyl-N,N'-diphenyl- (9CI) (CA INDEX NAME)